



LIBRARY

URBAN DISTRICT OF HETTON.

REPORT

OF THE

Medical Officer of Health

FOR THE YEAR 1938.

R. MACLEOD, M.B., Ch.B., D.P.H.



1939

HETTON URBAN DISTRICT

PUBLIC HEALTH DEPARTMENT.

The Annual Report for the year 1938 is
here presented to the Chairman and
members of the Council with the
compliments of the Medical Officer
of Health.

March, 1940.

PREFACE.

The delay in the publication of this Report, the twenty-third of a series on the vital statistics and sanitary condition of the district, is regretted, but was unavoidable because of the disorganisation brought about by the war when most of the time of the Health Officers had to be given to Air Raid Precautions work.

The greater part of the material of the Report was completed in the July and August of 1939, and should be read in that light. The Report follows the usual lines, based on the instructions for its preparation issued by the Ministry of Health.

The assistance given by the Staff during the year was of the best kind and is here gratefully acknowledged.

R. MACLEOD.

PUBLIC HEALTH OFFICERS OF THE LOCAL AUTHORITY.

The members of the Staff directly or indirectly concerned with Public Health are as follows :

- (a) Medical Officer of Health and Medical Superintendent of the Fever Hospital with the degrees M.B., Ch.B., and holding the Diploma in Public Health.
- (b) Chief Sanitary Inspector holding the Certificate of the Royal Sanitary Institute and Sanitary Inspectors' Examination Board, the Certificate of the Royal Sanitary Institute for Inspector of Meat and other Foods, and Certificate in Sanitary Science and Building Construction, and one assistant Sanitary Inspector also holding the Certificate of the Royal Sanitary Institute and Sanitary Inspectors' Examination Board and the Certificate of the Royal Sanitary Institute for Inspection of Meat and other Foods.
- (c) One Surveyor holding the Sanitary Inspectors' Certificate, and assistant partly employed in sanitary work.
- (d) One Matron and one Nurse (both fully trained nurses) permanently employed at the Fever Hospital.

Statistics and Social Conditions of the Area.

GENERAL STATISTICS.

Area—4,527 acres.

Registrar-General's estimate of resident Population 19,500.

Number of inhabited houses (end of 1938) according
to Rate Books—5,048

Rateable value—£60,940.

Sum represented by a penny rate—(Gross) £253 : 18 : 0.

Product of a penny rate—£223 : 3 : 7

OCCUPATION AND SOCIAL CONDITION.

Mining is practically the only industry in the district, and during the year the coal mines worked continuously.

EXTRACTS FROM VITAL STATISTICS.

Live Births—	Total...	393	...	M...200, F...193.
	Legitimate	389	...	M...197, F...192.
	Illegitimate	4	...	M... 3, F... 1.

Birth-rate per 1,000 estimated resident population ... 20·1

Still Births—Total 9. M, 6. F, 3.

Legitimate...M, 6. F, 3.

Illegitimate...M, 0. F, 0.

Rate of still births per 1000 (live & still) births—22·3.

Deaths—Total 232, Males 129, Females 103

Rate per 1000 of estimated resident population : 14·16*

Deaths from puerperal causes— 0

Puerperal sepsis	0
------------------	-----	-----	-----	-----	---

Other puerperal causes	0
------------------------	-----	-----	-----	-----	---

Rate per 1000 live births	0·0
---------------------------	-----	-----	-----	-----	-----

Rate per 1000 live and still births	0·0
-------------------------------------	-----	-----	-----	-----	-----

Deaths of infants under one year of age— ... 33

All infants per 1000 live births	83·9
----------------------------------	-----	-----	-----	------

Legitimate infants per 1000 legitimate live births	83·9
--	-----	-----	-----	------

Illegitimate infants per 1000 illegitimate live births	0·0
--	-----	-----	-----	-----

Deaths from Cancer (all ages)	35
-------------------------------	-----	-----	-----	----

„ „ Measles (all ages)	1
------------------------	-----	-----	-----	---

„ „ Whooping Cough (all ages)	0
-------------------------------	-----	-----	-----	---

„ „ Diarrhoea (under 2 years of age)	1
--------------------------------------	-----	-----	-----	---

* Arrived at by multiplying crude death-rate (11·5)
by comparability factor (1·19).

HEART DISEASE AND CANCER.

Heart disease exacted the heaviest toll of deaths during the year—33 males and 20 females having died of the disease. Most cases of heart disease are due to rheumatism, which itself is generally caused by cold and dampness, and damp insanitary dwellings cannot escape indictment.

Cancer comes next as causing the greatest number of deaths—18 males and 17 females having died of the disease, which is in accordance with that experienced throughout the country. Sir Arthur McNalty, Chief Medical Officer of the Ministry of Health, writes: “The total number of deaths registered in 1937 was 66,991, and the disease now takes second highest position among the killing diseases.”

CAUSES OF DEATH IN 1938.

CAUSES OF DEATH,			MALES.	FEMALES
All Causes	...	...	129	103
1	Typhoid and paratyphoid Fevers		0	0
2	Measles	...	1	0
3	Scarlet Fever	...	0	0
4	Whooping cough	...	0	0
5	Diphtheria	...	0	2
6	Influenza	...	0	1
7	Encephalitis lethargica	...	0	0
8	Cerebro-spinal fever	...	1	0
9	Tuberculosis of respiratory system		8	4
10	Other tuberculous diseases	...	3	2
11	Syphilis	...	0	0
12	General paralysis of the insane, tabes dorsalis		0	0
13	Cancer, malignant disease	...	18	17
14	Diabetes	...	0	2
15	Cerebral hæmorrhage, &c.	...	15	6
16	Heart disease	...	33	20
17	Aneurysm	...	0	0
18	Other circulatory diseases	...	3	3
19	Bronchitis	...	7	8
20	Pneumonia (all forms)	...	7	8
21	Other respiratory diseases	...	2	1
22	Peptic ulcer	...	1	0
23	Diarrhœa &c. (under 2 years)	...	1	0
24	Appendicitis	...	0	1
25	Cirrhosis of Liver	...	0	0
26	Other diseases of Liver, &c.	...	1	3
27	Other digestive diseases	...	2	5
28	Acute and chronic nephritis	...	1	1
29	Puerperal Sepsis	...	—	0
30	Other puerperal causes	...	—	0
31	Congenital debility, premature births, malformations, etc.	...	9	5
32	Senility	...	4	4
33	Suicide	...	1	0
34	Other violence	...	8	3
35	Other defined diseases	...	5	7
36	Causes ill-defined or unknown		0	0
37	Diarrhœa (2 yrs. & over)	...	0	0

**Birth-rates, Death-rates, Analysis of
Mortality, Maternal Death-rates, and
Case-rates for certain Infectious Diseases
in the year 1938.**

**England and Wales, London,
126 Great Towns and 148
Smaller Towns.**

(Provisional Figures based on Weekly and Quarterly Returns)

				England & Wales	126 County Boro's and Great Towns including London.	148 Smaller Towns (Resident Popula- tions 25,000 to 50,000 at 1931 Census.)	London Admini- strative County.	Hetton Urban District.
				Rates per 1,000 Population.				
BIRTHS—								
Live...	...	...	...	15·1	15·0	15·4	13·4	20·1
Still...	...	...	...	0·60	0·65	0·60	0·48	4·6
DEATHS—								
All Causes	...	...	...	11·6	11·7	11·0	11·4	11·9
Typhoid & Paratyphoid fevers				0·00	0·00	0·00	0·00	0·00
Smallpox	...	...	...	0·00	—	0·00	—	0·00
Measles	...	...	...	0·04	0·05	0·03	0·06	0·05
Scarlet fever	...	...	...	0·01	0·01	0·01	0·01	0·00
Whooping Cough	...	...	...	0·03	0·03	0·02	0·03	0·00
Diphtheria	...	...	...	0·07	0·07	0·06	0·05	0·1
Influenza	...	...	...	0·11	0·10	0·11	0·06	0·05
NOTIFICATIONS—								
Smallpox	...	...	...	0·00	0·00	0·00	—	0·0
Scarlet fever	...	...	...	2·41	2·60	2·58	2·05	3·79
Diphtheria	...	...	...	1·58	1·85	1·53	1·90	2·0
Enteric fever	...	...	...	0·03	0·03	0·04	0·05	0·05
Erysipelas	...	...	...	0·40	0·46	0·39	0·46	0·72
Pneumonia	...	...	...	1·10	1·28	0·98	0·98	2·82
				Rates per 1,000 Live Births.				
Deaths under 1 year of age				53	57	51	57	83·9
Deaths from Diarrhoea and Enteritis under 2 years of age				5·5	7·8	3·6	13·1	2·54
MATERNAL MORTALITY—								
Puerperal Sepsis	...	...	...	0·89	Not available			0·00
Others	...	...	...	2·19				0·00
Total	...	...	...	3·08				0·00
				Rates per 1,000 Total Births (i.e. Live & Still)				
MATERNAL MORTALITY—								
Puerperal Sepsis	...	...	...	0·86	Not available			0·00
Others	...	...	...	2·11				0·00
Total	...	...	...	2·97				0·00
NOTIFICATIONS—								
Puerperal Fever			}	14·42	18·08	12·51	3·53	—
Puerperal pyrexia							15·46	9·95

General Provision of Health Services for the Area.

PUBLIC HEALTH STAFF.

Full particulars of the Public Health Officers are given at the beginning of the report.

LABORATORY FACILITIES.

There was no change in this service during the year.

AMBULANCE FACILITIES.

The service remains efficient and adequate for the district.

NURSING IN THE HOME.

There was no change in the nursing service during the year. The nurses continue to do excellent work.

HOSPITALS.

The only hospital belonging to the Council is the Rainton Bridge Fever Hospital. This hospital was well maintained during the year, and proved adequate for the needs of the district. No difficulty was experienced in obtaining the consent of parents for removal of patients, and this speaks well for the administration at the hospital.

"BETTER HEALTH"

The Council continued the issue of this Journal, of which 550 free copies monthly were distributed throughout the year. In the past nine years 58,500 free copies have been so distributed in the district.

Sanitary Circumstances of the Area.

DRAINAGE AND SEWERAGE.

The work of re-constructing the sewage farm was completed during the year under review, and the farm was formally opened in the early Autumn. The drains and sewers have been well maintained, but owing to the fact that many portions of the sewers were seriously affected by colliery subsidence or inadequate in size, a general scheme for re-construction has been under consideration for some years, and a firm of Consulting Engineers were engaged by the Council to make a complete survey and report. The survey has been completed and their preliminary report indicates that extensive re-construction work, entailing great expense, will be necessary.

The general condition of the sewers, and also the fact that the sewage farm was undergoing re-construction, prevented any further progress being made with the closet conversions scheme, but towards the end of the year a scheme for the conversion of a further 1,000 ash-closets and privies to the water carriage system received the approval of the Commissioners, who promised a substantial grant. This scheme affects the remaining portion of the Downs Ward, and Hetton and Easington Lane, and the necessary notices under the Public Health Act 1936, were served, and much preliminary work with regard to the scheme was carried out.

Apart from the scheme 18 conversions were carried out in various parts of the District at private owners' own cost, and 13 additional water closets were also provided to meet cases of insufficiency.

The following figures show the number of conveniences of various types in use in the area at the end of 1938 :—

Water closets	...	...	...	2737
Ash-closets	...	...	...	2554
Ash-pit privies	...	...	...	43

A large number of ash-closets were brought within the Urban District when the boundaries were extended, and it

will not be possible in the case of many of these, to bring them within the scope of the conversion scheme, owing to the lack of proper sewerage and inadequate water supply. Fortunately many of these and also some within the old Urban District will disappear when the properties which they serve will be dealt with under the Housing Clearance Programme. A large proportion of the water-closets in the area are of course attached to the Council's own houses.

During 1938, 72 informal notices were served in respect of various drainage defects, 46 informal notices in respect of defects to water closets, and in the same period 110 nuisances were abated under these headings.

It is interesting to note in connection with the fairly large scheme of closet conversions which was completed during 1937, that although in many cases tenants were not used to water-closets, and probably misused them, there was little trouble with regard to choked drains, etc., and, with regard to the sewers, it is no doubt a fact that in Districts such as this, with a preponderance of unmade back streets, with consequent silting up of the sewers by road grit and coal dust, the increased flushing which the sewers receive as a result of closet conversions can only have a beneficial effect.

A large amount of work in connection with testing of drains for new buildings, and in connection with re-constructions was carried out by the Department during the year, some 280 lineal yards of drain being dealt with.

SCAVENGING.

This work is carried out under the supervision of the Health Department, five motors and eleven men being engaged. One of the men who acts as foreman and mechanic is largely engaged on the repairs and maintenance of the vehicles, and he also, when required, acts as driver for the Infectious Diseases Ambulance. This staff is augmented by four hired carts which are employed as required on the

work. Two of the vehicles engaged on the work are modern low loading covered bodies on Bedford Chassis, one being of seven cubic yard capacity, and the other of five cubic yard capacity, and both being equipped with hydraulic tipping gear. The remainder are on two ton Ford or Fordson Chassis, and the bodies of these are far from satisfactory, being poor in design and construction, and having a very high loading line. Attempts have been made to re-construct and modernise these bodies, and the unsatisfactory roller shutters have been replaced with semi-circular steel shutters, but I am afraid the maintenance of these bodies will always be a source of anxiety and expense, but it is hoped, in time, to get together a fleet of vehicles of modern type, and in this connection, if it were possible to obtain general conversion of the ash-closets to water-closets, and therefore the general adoption of ash-bins throughout the district, this would do much to expedite the scavenging service, and reduce costs, and whilst it is not intended to reduce the existing staff, it would be possible to dispense with the services of the cartage contractors without additions to the existing staff, and very possibly, if a properly organised scheme of relay work was in operation, it would be possible to reduce the number of vehicles in use. The present prevalence of ash-closets, which almost always have to be dealt with individually, with necessary slow loading and much sweeping up following the operation, the generally bad condition of the back streets, and numerous places difficult of access, gives the motor haulage little advantage over horse haulage, except in the length of lead to the tips, which at the present time is rather long. The fact that it has not been possible to completely convert any one section of the district, ash-closets being left in various parts, which require individual attention, makes it very difficult for a proper scavenging organisation to be put into operation.

The bulk of the refuse is disposed of at four tips, which are controlled as far as the available supply of soil and incombustible matter will allow, and much useful land has been reclaimed in this way. The tips are surrounded as far

as possible by 6' high fences of stout wire netting, in order to obviate nuisance from the dispersal of loose paper in high winds, and to prevent trespass. The Welfare tip, where there is abundant tipping for many years, can be extended no further, until the burn is culverted, but a short extension of this culvert, owing to the great depth of the tip which it would make available, and also because it would provide access to the far side of the tip, would provide tipping for some years to come. The Bullwells tip was nearing completion, but during the year a further agreement was entered into with the owners, which made available further land for tipping, and this land is now being tipped upon in shallow layers, as the old form of the tip, with a steep face, was in my opinion dangerous in case of fire. This tipping is proceeding fairly well, although I find, as I expected, that the spreading of the refuse in this manner, is causing rather more trouble from the dispersal of loose paper. The Gill tip will take little more refuse if proper levels are to be maintained. I was fortunately able to obtain an extensive tip adjoining the Hazard Colliery at a reasonable rental, and this should provide tipping for some years, and there is actually little reason to fear any shortage of tipping for some years to come. During the year a large amount of refuse was disposed of in levelling operations at the sewage farm, and a small proportion of refuse is still disposed of to farmers, who plough it into the soil for manurial purposes, or deposit it, to make good damage from colliery subsidence. The demand is, however, seasonal in nature, and will vanish with the general conversion of the middens and ash-closets, and also, owing to the possibility of damage to the vehicles in negotiating bad roads on to the fields, this method is not always desirable. A further difficulty is also experienced owing to the methods sometimes adopted by the farmer in disposing of tins, paper, etc., which often becomes deposited in adjacent ditches. Considerable difficulty is experienced with the tips, owing to promiscuous dumping of refuse by tradesmen and members of the Public. Large amounts of builders' rubbish, garden

rubbish, tradesmen's refuse and household refuse, such as wall paper strippings, have in the past been dumped on the tips, making unsightly heaps, which subsequently have to be levelled, and causing a nuisance from blown paper. The raking over of the tip by people in search of salvage, makes it difficult to keep the latter tidy, although I am always reluctant to interfere with these men, as many of them really do useful salvage work. The thoughtless lighting of fires by children or other trespassers against the exposed refuse face, causes a serious risk of fire in dry weather, such fires are difficult and expensive to extinguish, and also give rise to a serious nuisance. Fortunately, the heavy, wet, nature, and large faecal content of a big proportion of the refuse dealt with, does not readily lend itself to easy combustion, but with the general conversion to the water carriage system, and having regard to the dry combustible nature of ash-bin contents, this danger may assume serious proportions. The tips are kept under observation, to prevent nuisance from flies and other insects, and for the extermination of rats.

A scheme for the collection and sale of waste paper, which was started in 1937, was continued during the year, a contract with a firm of manufacturers being entered into. The manufacturers loaned a press for the baling of waste paper, and collected the bales from the scavenging depot from time to time. A large amount of waste paper was disposed of in this manner, and this method of dispersal also helped to mitigate the nuisance caused by tradesmen on the tips. I hoped to make this scheme an economical proposition, but, largely owing to lack of enthusiasm amongst the scavengers, the return of waste paper was not sufficient to justify carrying on with the scheme.

A scheme is also in operation for the sale of ash-bins to the public for replacement purposes. These bins are sold at cost price, plus a small percentage to cover establishment and delivery charges, and owing to a fortunate purchase, I am still able to sell bins to the public at considerably below

their present market price. This scheme ensures that a refuse receptacle of standardised design and robust construction, will in time, be used throughout the district. Thirty-two bins were sold to the public during the year under review.

The number of ash-closets and privies dealt with by the scavenging staff at the end of 1938 was 2597, with, in addition some other premises, which were equipped with ash-bins or other receptacles. A large number of ash-closets and privies will disappear as the premises to which they are attached, are dealt with under the Housing Clearance Programme, and the remainder it is hoped to convert to the water carriage system. In effect, during 1938, 18 ash-closets were converted and 94 were demolished. A large number of premises, generally houses which are already, or soon will be dealt with in Clearance Areas, are only equipped with boxes, tins, or other makeshift containers for refuse, and these, besides being unsightly and unhygienic, also make it necessary, owing to their small capacity, for a daily collection of refuse in the areas affected. A further difficulty arises in connection with some of these houses inasmuch as, owing to lack of access at the rear, the refuse has to be carried through the living rooms.

The amount of refuse dealt with, for a district the size of the Urban Area, is excessively heavy. The principal industry of the area being coal mining, a large proportion of the population is using workmen's coals, which are generally of inferior quality, containing a large amount of incombustible mineral matter, and which are, as ascertained from periodical examinations of the refuse, often wastefully used, although the type of grate in fairly general use throughout the district, is a contributory cause of this. The amount of splints and other incombustible matter put into the ash-bins does, in some cases, make them excessively heavy, and has, on occasions, resulted in injury to the workmen engaged in lifting them; also in many cases, tenants affected were depositing the splints on the roadway when they received their workmen's coals, thus causing an obstruction, and

which might have resulted in injury to persons using the highway. The matter was therefore taken up with the Colliery Company, and they have agreed to send round a cart to pick up any accumulations of these splints. The absence of conveniently situated weigh bridges makes it impossible to systematically weigh the refuse, but all loads collected and disposed of, and the origin thereof, are recorded, and from these records, it is estimated that the total quantity of refuse collected and disposed of was approximately 27,144 tons. This figure indicates the weight of 5.2 tons per house per annum, or 1.37 tons per thousand of population per day. The annual cost of collection and disposal per ton is 2.78s. or an average cost per house per annum of 14/6 for the 5,220 premises dealt with. It is interesting to note that the actual expenditure on the financial year 1938 was £3,784/11/4, the expenditure for the corresponding period 1937 being £3,274/15/5, representing an increase in expenditure for the year of £509/15/11. This increase was due firstly to increase in wages, which accounted for £447/10/4, the purchase of a new scavenging vehicle, £290, and increase in the rentals of refuse tips, £50, these three items amounting to £787/10/4. One item at least, the vehicle purchase, will not be an annual charge, and in this connection, as I have previously suggested, it would be very desirable to create a sinking fund for vehicle renewals which could be supplemented in each half-yearly estimate, with in addition any surplus balance from the repairs and maintenance fund, when heavy items of expenditure such as new vehicles would not be set off against any one year's scavenging costs.

SUMMARY of Work done in the Sanitary Inspector's Department during the year 1938.

	Number of Informal written Notices by Inspector.	Number of Formal Notices by order of Authority.	Number of Nuisances abated after Notice.
Public Health Acts.			
Foul Conditions ...	...	...	...
Dwelling Houses & Schools:			
Structural Defects ...	83	...	72
Overcrowding ...	3	...	2
Dairies & Milkshops ...	5		5
Cowsheds ...	32	...	32
Bakehouses ...	8	...	8
Slaughter Houses ...	87	...	87
Ashpits & Privies ...	20	1,697	14
Deposits of Refuse & Manure	20	...	12
Water-closets ...	46	...	48
Defective Yard Paving ...	7		1
House Drainage—		...	
Defective Traps ...	10	...	9
No disconnection from Sewer	1	...	...
Other Faults ...	61	...	53
Water Supply ...	29	...	26
Other Nuisances—	1	1	
Smoke Nuisances ...	3	...	1
Defective Spouts ...	13	...	12
Provision of Dust Bins ...	32	...	32
" " Scullery Sinks	41	...	35
Totals...	501	1,697	449

WATER, FOOD & DRUGS.

Samples of Water taken for Analysis ...	3.
" condemned as unfit for use	1.

PRECAUTIONS AGAINST INFECTIOUS DISEASE.

Lots of Infectious Bedding stoved or destroyed ...	121
Houses Disinfected after Infectious Disease ...	118

GENERAL.

Number of New Houses erected during the year	100
" " " occupied during the year	100
Ashpit-privies converted into Ash-closets... ..	—
do. do. Water-closets	—
Ash-closets do. do.	18
Ash-closets demolished	94
Additional W.C's provided	124
Total number of Water-closets in district	2737
do. Ash-closets do.	2554
do. Ash-pit privies do.	43

ERADICATION OF BED BUGS.

During the year under review, action was taken for the eradication of bed bugs in the undermentioned premises, viz. :—

(a) Council Houses	...	...	4
(b) Private Dwellings	...	...	10

These houses were, with few exceptions, not seriously infested, and were successfully disinfested, complaints respecting reinfestation being very few, having regard to the difficulty in carrying out the work in occupied houses, and rooms crowded with furniture. In addition to disinfestation after bed bugs, a large number of houses were treated for the eradication of beetles, cockroaches, ants, and other vermin.

Infested premises are treated by fumigation generally, a completely safe form of fumigant being used (in some cases formalin vapour, and in others sulphur-dioxide) which, in the event of inadvertent contact with any of the higher forms of life, would only cause severe discomfort. Insecticidal powders are also used, and wherever possible, the blow lamp is utilised, as, in the hands of an intelligent operative, this is considered to be the most effective form of cleansing.

Experiments are continually in progress, with a view to obtaining a completely satisfactory insecticide, and in this connection coal tar naphtha has been found very effective and cheap. A proprietary material also used, viz. :—Newton Chambers Zaldezide has also been found very satisfactory in use, the difficulty experienced with insecticide being that, owing to the necessity for a low surface tension, these liquids are volatile in nature and therefore somewhat inflammable. Experiments have therefore been tried with liquids with a soft soap base which are diluted with water. These are cheaper in use, and one at least, viz. :—Goodalls “Nopest” are found to be quite effective. It must be appreciated that with spraying treatment for disinfestation, the

effect of the material generally depends upon its ability to form a viscuous film around the insect or its eggs, thus stifling it. This effect may be enhanced by the introduction of certain poisonous substances, but the general effect depends actually, upon direct contact of the liquid with the insect or ova, therefore, spraying methods cannot be relied upon as being absolutely positive in action, as insects or eggs may be lodged in inaccessible places. No doubt the presence of the insecticide does have a deterrent effect, but it is very difficult to guarantee complete disinfection.

Treatment is generally carried out on three occasions. On the first occasion fumigation being used to eradicate existing vermin, and to make conditions suitable for the workmen to operate without fear of becoming personally infested, then, if necessary, and this is usually the case, skirting, picture-rails and architraves are removed or eased back, and spraying takes place. This treatment is repeated a week later to eradicate vermin which have subsequently incubated, and again the following week, to ensure positive eradication. Even after this somewhat elaborate procedure, it is necessary for the tenant to make some effort to ensure that reinfestation does not take place, as it must be appreciated that, if only one pair of vermin of opposite sex are left, or even a single fertile female, the cycle may re-commence within a very short time, therefore subsequent visits are made to ensure that reinfestation has not taken place, and that the tenant is making an effort to ensure this.

The belongings of persons who are prospective tenants of Council houses, are inspected immediately prior to removal, with a view to the detection of vermin, and if necessary treated to ensure that infestation of the new house does not occur. I would prefer personally, that this arrangement was carried out without any discrimination whatsoever in the case of every prospective tenant to the Council's property. This, however, could only effectively be done by the aid of an outside Contractor, and unfortunately infestation in many cases, is no doubt caused by the indiscriminate

purchase of second-hand furniture which carry vermin into the house.

The work of disinfestation would be considerably eased if woodwork was, as far as possible, eradicated from the house interior. The present day custom of using ceiling board for ceilings with sometimes open joints between panels covered by a lath or tape and often with a scotia moulding around the junction of wall and ceiling, tends to provide excellent lodgment for vermin, particularly after shrinkage takes place, and also I am of opinion that many of the ceiling boards definitely encourage vermin.

The whole of the work is carried out by the Council's workmen, under the supervision of the Health Department, treatment in difficult cases being carried out personally by the Sanitary Inspectors.

Housing.

HOUSING STATISTICS.

I—Inspection of dwelling houses during the year.

(1) (a) Total Number of dwelling-houses inspected for housing defects (under Public Health or Housing Acts)	619
(b) Number of inspections made for the purpose	1703
(2) (a) Number of dwelling-houses (included in sub-head (1) above) which were inspected and recorded under the Housing Consolidated Regulations, 1925 ...	227
(b) Number of inspections made for the purpose...	523
(3) Number of dwelling-houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation	182
(4) Number of dwelling-houses (exclusive of those referred to under the preceding sub-head) found not to be in all respects reasonably fit for human habitation	416

2.—Remedy of Defects without service of formal Notice.

Number of defective dwelling-houses rendered fit in consequence of informal action by the Local Authority or their officers	378
---	-----

3.—Action under Statutory Powers.

(A) *Proceeding under section 9, 10 & 16 of the Housing Act, 1936.*

(1) Number of dwelling-houses in respect of which notices were served requiring repairs... ..	0
---	---

(2) Number of dwelling-houses which were rendered fit after service of formal notice	0
(a) by owners.....	—
(b) by Local Authority in default of owners	0

(B) *Proceedings under Public Health Acts.*

(1) Number of dwelling-houses in respect of which notices were served requiring defects to be remedied	1697
(2) Number of dwelling-houses in which defects were remedied after service of formal notice	14
(a) by owners.....	—
(b) by Local Authority in default of owners...	—

(C) *Proceedings under sections 11, and 13 of the Housing Act, 1936.*

(1) Number of dwelling-houses in respect of which Demolition Orders were made	3
(2) Number of dwelling-houses demolished in pursuance of demolition orders	0

(D) *Proceedings under Sect. 12 of the Housing Act, 1930.*

(1) Number of separate tenements or underground rooms in respect of which Closing Orders were made	8
(2) Number of separate tenements or underground rooms in respect of which Closing Orders were determined, the tenement or room having been rendered fit	3

4.—Housing Act 1936, Part IV - Overcrowding :—

(a)—(i) Number of dwellings overcrowded at the end of the year	438
(ii) Number of families dwelling therein	498
(iii) Number of persons dwelling therein	2659
(b)—Number of new cases of overcrowding reported during the year	3
(c)—(i) Number of cases of overcrowding relieved during the year	126
(ii) Number of persons concerned in such cases ...	544½
(d)—Number of cases in which dwelling-houses have again become overcrowded after the Local Author- ity have taken steps for the abatement of over- crowding	0

Housing Clearance Programme :

Progress at the end of December, 1938.

BY CLEARANCE OR COMPULSORY PURCHASE ORDERS.

	Houses.	Persons.	Date of "Official Representation" of houses as unfit for human habitation.
Pemberton Street Area	85	316	3/7/1933
Murton Lane Area No. 1	67	246	31/7/1933
Do. do. No. 2	3	18	31/7/1933
High Downs Square Area No. 1 ...	38	123	28/5/1934
Do. do. No. 2	5	17	28/5/1934
Brickgarth Area	39	203	23/9/1935
Bog Row Area No. 1	5	20	"
Do. do. No. 2	6	29	"
Do. do. No. 3	7	25	"
Do. do. No. 4	14	82	"
Hetton Square Area	31	103	31/8/1936
Springwell Terrace (Compul. Pur.) ...	50	191	"
Dene Street Area	39	225	"
Shaw's Row Area No. 1	41	154	31/3/1937
Do. do. No. 2	8	34	"
Lyons Colliery Area No. 1	4	19	"
Do. do. No. 2	17	62	"
Do. do. No. 3	6	23	"
Moorsley (Compul. Pur.) and Moorsley Clearance Areas Seven Areas represented by the late Houghton R.D.C.,	138	527	19/11/1936
Areas dealt with by the late Houghton R.D.C. and now situate within the Urban Area, at East and Middle Rainton and Rainton Bridge... ..	35	130	11/2/1937
East Rainton Area No. 8	3	8	16/11/1937
do. do. No. 9	4	13	"
do. do. No. 10	2	4	"
do. do. No. 11	3	9	"
do. do. No. 12	5	21	"
do. do. No. 13	2	10	"
do. do. No. 16	2	9	"
do. do. No. 17	2	7	"
do. do. No. 18	2	7	"
Middle Rainton Area No. 7	59	212	"
do. do. No. 8	3	11	"
TOTALS :	632	2508	

Housing Clearance Programme—contd.**AS INDIVIDUAL UNFIT HOUSES.**

			Houses.	Persons.
BY DEMOLITION ORDERS	...		28	93
Do.	do.	made by late		
Houghton R.D.C.	but now situate in			
Urban Area	...	...	6	Unknown
BY CLOSING ORDERS	...	...	19	68
Do.	do.	made by late		
Houghton R.D.C.	but now situate in			
Urban Area	...	...	4	Unknown
TOTALS :			57	161

SLUM CLEARANCE AND REHOUSING.

Eighty-seven houses were erected by the local authority during the year, a number small in comparison with the large number of families in condemned houses urgently needing rehousing. No progress at all was made with new slum clearance areas during the year, partly due to difficulties experienced with areas officially represented early in 1938, and in respect of which compulsory purchase orders were made, but mainly because of the failure of rehousing to keep pace with the work of the Health Department. In regard to these areas, various attempts were made by owners to escape the usual procedure of the law, that is, a Ministry of Health enquiry, by seeking interviews with the Council and its Officers, and by submitting certain proposals for reconstruction of the properties. Much valuable time and energy were wasted with these interviews and proposals, though no reconstruction of the properties could be carried out at reasonable cost, and when even for the proposals submitted, inadequate as they were, no guarantee was forthcoming that they would be carried out. The Council naturally rejected such proposals.

The delay in rehousing has brought, as has been shown, all slum clearance work by the Health Department to a standstill. It would have been against the public health interest to have proceeded with more official representations while hundreds of families living in condemned houses had not been rehoused. If official representations had been proceeded with it would only have intensified our difficulties. It will be appreciated that houses that are quite unfit at the time of the official representation will rapidly deteriorate, as owners are unwilling and cannot be compelled to spend money on property condemned. We find people, in Moorsley for instance, living under grossly insanitary conditions in areas officially represented as far back as 1936, and in respect of which orders were made and confirmed by the Ministry.

Had it not been for the delay in re-housing, we could have proceeded with official representations and completed, as far as this Department is concerned, all the slum clearance work in time to qualify for the higher housing subsidy. If, however, the Department had under the circumstances, done this, the plight of the tenants would have been infinitely worse. As it is, there are more than 300 families living in slum areas on which orders were made and confirmed by the Ministry or in houses on which demolition orders have been made ; and it is estimated that, with overcrowded houses, close on 400 houses are immediately required, or considerably more than we have been able to erect in the five years of rehousing. If we consider these requirements and that various other areas remain to be dealt with, it will be apparent that rehousing is going to take many years to complete, and that, if the work is to be speeded up, alternative or additional methods will have to be adopted.

NECESSITY FOR AN ENGINEERING DEPARTMENT.

The work of rehousing is at present being done by outside architects and not by or under the supervision of officers of the local authority. This method has led to many difficulties, defects and disadvantages, and, incidentally, to rather high costs—a matter deserving of careful consideration at the present time, particularly in view of the now reduced housing subsidy and the increased loan interest, necessarily meaning increased rents : in the case of a three-bedroom type of house, for instance, an increase of 2/6 per week. Increased rents in working class populations have been shown by research to have serious repercussions on the public health. The late Dr. McGonigle in his book “Poverty and Health” records the ill-effects where higher rents meant less food.

The desirability of establishing an Engineering Department to overtake this work has previously been stressed. The

Ministry, in pursuance of Circular No. 1684, are likely in any case to insist on the appointment of a qualified engineer for the Water Supply, which requires expert engineering supervision, The ideal arrangement would be to place this engineer in charge of the new Engineering Department to take over such services so vitally concerning the public health as Water Supply, Sanitary Engineering, architectural and constructional work, which unhappily at present, for lack of such a Department, has to go to outside persons. The Engineering Department would remove many difficulties that are at present besetting and hampering public health progress.

Inspection and Supervision of Food.

MEAT INSPECTION AND SLAUGHTER HOUSES.

At the end of 1938 the number of slaughter houses on the Register was 16. The slaughter houses are licensed annually at the discretion of the Council, under the provisions of section 29 of the Public Health Acts (Amendment) Act, 1890, and are generally in good structural condition, light, airy, and easily cleansed, and in the majority of cases also equipped with refrigeration apparatus. As a result of action by the Department, one slaughter house at Easington Lane was completely re-constructed during the year, the result being a great improvement on the conditions which had previously existed.

The Council have adopted the provisions of the Slaughter of Animals Act, 1933 in full, and it is therefore necessary for all classes of Food animals to be humanely stunned by a mechanically operated instrument before slaughter, the instrument generally in use being either Cash, Schermer, or Temple Cox, of the captive bolt type, although a few butchers possess the Greener gun, or Sweedish killer, which is occasionally used on very large animals. The latter instrument is more reliable, but is not popular with butchers as the effect on smaller animals is rather severe, and owing to a free bullet being used there is more danger of personal injury, the ammunition is also more expensive. The captive bolt type often give trouble owing to the failure of the compression packings, although it is only fair to say that the trouble is more often than not due to misuse or neglect, generally by misplacing the instrument on the animal's head, or the use of a larger charge than the resistance of the animal being dealt with justifies, or to neglect in cleaning the instrument after use. Failure of the instrument is too frequently given as an excuse for not stunning animals, particularly sheep, as many butchers are still prejudiced against the stunning of sheep before slaughter. The

modern method of stunning pigs by electricity, although very convenient and effective, is not in use in the district, and is not likely to find favour with the small butcher until it is adaptable to all classes of animals.

All slaughtermen are licensed annually by the Council under the Slaughter of Animals Act, only fit and proper persons over the age of eighteen years being granted licences, and at the end of 1938, 52 licences were in operation, 2 of these being to new applicants, the remainder being the renewal of existing licences granted by this Council or other local authorities.

All slaughtering is as far as possible supervised by your officers, and as your Assistant Sanitary Inspector was successful at the beginning of the year in obtaining the Certificate of the Royal Sanitary Institute as an Inspector of Meat and other Foods, the District now possesses two fully qualified officers in this connection. The majority of the slaughterhouse proprietors have deposited notices of regular times of slaughter, which in many cases makes it necessary for your officers to visit twice daily, four days per week, and during the summer months, when weather conditions are unfavourable to the keeping of meat, the amount of week-end slaughter is considerable. The district is fortunate inasmuch as the slaughter of pigs by smallholders on unlicensed premises is negligible, only two notifications, both from the same source, being received during the year. It is insisted in these cases that the slaughter should be carried out by a licensed man, but the practice is undesirable, as efficient slaughter and cleanly dressing and storage are almost invariably impossible under the conditions generally existing on smallholders' premises.

Butchers' shops, slaughter houses, and conveyances are kept under constant observation, periodical notices being served for limewashing or other cleansing processes, and in connection with carts it was necessary on several occasions to

issue a reminder regarding the lack of covering sheets to protect the meat against dust and contamination in the streets.

The following table shows the work done in connection with meat inspection during the year under review.

Carcases inspected and condemned.

	Cattle excluding Cows. (Estimated)	Cows (Estimated)	Calves (Estimated)	Sheep and Lambs (Estimated)	Pigs (Estimated)
Number killed, if known ...	900	500	6	1700	1200
Number inspected ...	861	479	6	1647	1144
All diseases except T.B. Whole carcasses condemned ...	2	—	—	—	1
Carcases of which some part or organ was condemned ...	25	33	—	21	10
Percentage of the number inspected affected with disease other than T.B.	2·03%	6·88%	—	1·21%	0·96%
Tuberculosis only, Whole carcasses condemned ...	—	2	—	—	—
Carcases of which some part or organ was condemned ...	59	102	—	—	29
Percentage of the number inspected affected with tuberculosis ...	6·85%	21·71%	—	—	2·53%

The total weight of meat condemned as unfit during 1938 amounted to 6 tons 18 cwts. 2 qrs., and the affected carcasses

or parts thereof, were all surrendered voluntarily without the necessity of recourse to legal proceedings or formal seizure. The majority of the butchers in the area participate in a mutual insurance scheme fostered by the local Butchers' Association, and, generally speaking, are not anxious to retain any meat which is of doubtful quality. All such meat was disposed of by the staff of the Health Department, none being sold to knackers or rendering companies for salvage.

SHOPS, FACTORIES AND BAKEHOUSES.

Considerable attention was devoted to the working of the Shops Act during the year, and a large number of shop premises were inspected, it being necessary to serve 23 notices with regard to insufficient closet accommodation, washing facilities for staff or lack of other amenities, and by the end of the year it might safely be said that the majority of the shops in the area comply in these respects with the appropriate provisions of the Act. Some time has been devoted to the enforcement of the hours of closing provisions of the Act, powers in this direction being delegated to the Local Authority by the County Council, when the extension of the boundaries took place. A serious difficulty arises here, inasmuch as there would appear to be no Closing Order specifying hours of closing in operation in this area, and it would appear necessary for this to be made before any legal action can be taken against offenders, a number of whom were cautioned by informal notice. There are, however, one or two blatant offenders in the area, upon whom cautions have had no effect, and whom it would appear desirable to prosecute.

At the end of 1938, there were nine retail bakehouses and one factory bakehouse in the district. These were periodically inspected and a satisfactory standard of cleanliness was found to be maintained, although in a few instances it was necessary to draw the attention of the proprietors to the re-

quirements of the Factory and Workshops Act with regard to the periodical cleansing of the premises, and these intimations received prompt attention. One bakehouse was more or less reconstructed during the year, resulting in better working conditions for the employees.

The whole of the public houses, halls, cinemas and places of entertainment were systematically inspected during the year, and, by arrangement with the police, a statement of the conditions found therein, was forwarded to them for use at the Licensing Sessions. As a result of this arrangement, the public houses in the district have been brought up to a high standard, bathrooms, and hot water supply, additional urinals and water closet accommodation, and adequate lighting of yards, and other amenities being provided. Two public houses were completely reconstructed at considerable expense ; another public house was demolished and a new building provided on the site, and it was decided, in the case of a further public house to do away with this, and build a new house on an adjacent site, and this work was put in hand during 1939.

A large amount of work was carried out in connection with Factories and Workshops, as indicated in the table attached hereto.

FACTORY & WORKSHOP ACT, 1901, & FACTORIES ACT, 1937

1.—INSPECTIONS for purposes of provisions as to health.
Including inspections made by Sanitary Inspectors.

Premises. (1)	Number of		
	Inspections. (2)	Written Notices. (3)	Occupiers prosecuted. (4)
FACTORIES with mechanical power...	53	17	—
FACTORIES without mechanical power	84	16	—
OTHER PREMISES under the Act (including works of building and engineering construction but not including outworkers' premises). ...	31	11	—
TOTAL	168	44	—

2.—DEFECTS FOUND.

Particulars. (1)	Number of Defects.			Number of defects in respect of which Prosecutions were instituted. (5)
	Found (2)	Remedied (3)	Referred to H.M. Inspector (4)	
Want of cleanliness (S.1) ...	22	22		
Overcrowding (S.2)... ..	—	—		
Unreasonable temperature (S.3)	—	—		
Inadequate ventilation (S.4) ...	2	2		
Ineffective drainage of floors (S.6)	5	5		
Sanitary Conveniences. { insufficient	8	7		
(S.7) { unsuitable or defective	3	3		
(S.7) { not separate for sexes...	4	4		
Other offences (Not including offences relating to Home Work or offences under the Sections mentioned in the Schedule to the Ministry of Health (Factories and Workshops Transfer of Powers) Order, 1921, and re-enacted in the Third Schedule to the Factories Act 1937.)				
Total	44	43		

FACTORIES, WORKSHOPS & WORKPLACES.

1.—INSPECTION OF FACTORIES, WORKSHOPS AND WORKPLACES.
INCLUDING INSPECTIONS MADE BY SANITARY INSPECTORS OR INSPECTORS OF NUISANCES.

Premises. (1)	Number of			Occupiers prosecuted. (4)
	Inspections. (2)	Written Notices (3)		
Factories (Including Factory Laundries)	53	17		
Workshops (Including Factory Workshops)	84	16		
Workplaces (Other than Outworkers' Premises.)	31	11		
Total	168	44		

DAIRIES AND COWSHEDS.

At the end of 1938 the number of persons on the Register of milk producers numbered 12. A considerable number of these producers are dealing in graded milks. 8 persons were registered as retailed purveyors of milk at the end of the year, and 4 supplementary licences under the Milk (Special Designations Order) were issued during 1938 to persons who were selling graded milks by retail in the District.

Systematic sampling is carried out from all producers and dairymen, the samples being submitted to the Agricultural Department, King's College, Newcastle-on-Tyne for bacteriological and chemical examination i.e. the determination of bacterial count and reaction to the methylene blue test, coliform content, and the percentage of fat and non-fatty solids. The results are generally good, there being room for improvement in some cases. Poor results are invariably found to be due to careless or dirty milking methods, and in this connection I have experienced some difficulty where producers are using milking machines. These machines, if properly used, are labour saving and hygienic, but it is absolutely necessary to sterilize them at least once daily, and the action of the steam on the rubber parts causes rapid deterioration, necessitating fairly frequent replacement, therefore, with the idea of saving time and money, sterilization is all too frequently scamped, and the machine itself in this case, may in time become the means of conveying bacteria into milk, these bacteria not being necessarily harmful, but affecting the keeping quality of the milk. The machines are often abused in the byre, particularly in the period taken up in changing the teat-cup cluster from one cow to another, it being observed that the operative neglects to switch off the machine, which causes, in the case of some machines, to act as a vacuum cleaner, extracting dust from the air of the byre and the bedding, and in other cases actually dragging the teat cups across the bedding,

thereby fouling them, possibly with manure. Under conditions such as these above-mentioned, the milking machine may give results infinitely worse than the most careless hand milking. Poor results are invariably found to be due to careless or dirty milking methods, rather than to faulty design or construction of the buildings or unsuitable utensils, as the majority of the producers now use utensils of modern design which are easily cleansed, although it must be appreciated that effective cleansing can only be accomplished by effective sterilization, as otherwise utensils which are visually clean may be far from bacteriologically sterilized. It is interesting to note that the purest utensils are often the worst looking, as the action of frequent and efficient sterilization undoubtedly rapidly depreciates the appearance of the utensil, without, however, affecting its efficiency.

The batches of samples are taken as closely as possible to ensure consistent weather conditions, as variations in temperature or atmospheric conditions may considerably affect the bacterial counts, and the difference in fodder between summer and winter months affects the fat contents of the milk. The producer is informed as to the result of the samples, and advised, where necessary, how to obtain better results. In some cases where milking machines have been suspected, I have personally taken a further sample by hand milking to demonstrate to the farmer where the fault lay.

The cowsheds and dairies are inspected regularly by the staff of the Health Department, and the standard of cleanliness observed is generally good, but in some cases there is room for improvement, both in this respect and also in the structure of the cowsheds and dairies. Informal notices have been served in 37 cases, with regard to the re-construction of buildings, and during the year one byre and dairy was completely re-constructed, the dairy being provided in the house, in place of a very unsatisfactory building which existed in the yard, and in another case, where the byre was completely satisfactory, the dairy was completely reconstructed, and a sterilization plant provided, this producer subse-

quently being placed on the roll of accredited producers for the County Council.

It is found that some producers, for various reasons, are reluctant to use a cooler, and as this process, particularly in the summer months, appreciably increases the keeping qualities of the milk, every effort is being made to obtain the general adoption of this practice, and the provision of modern, hygienic utensils for milking and storage purposes.

It has been the custom of the staff of the Department for many years, to accompany the County Council's Veterinary Officer, when he makes his periodical clinical examination of the cattle. Recent changes in legislature have now brought this clinical inspection within the purview of the Ministry of Agriculture, and I have not, during the year under review, received any notice with regard to these inspections. A good type of dairy cow is generally kept, and to the best of my knowledge, none of the animals was found to be suffering from tuberculosis of the udder, or other disease which might injuriously affect the milk supply.

***Prevalence of, and control over, Infectious
and other Diseases.***

INCIDENCE OF INFECTIOUS DISEASES
ACCORDING TO WARDS.

Scarlet Fever.

Notifications from Hetton Downs Ward	...	27
„ „ Hetton Ward	...	17
„ „ Easington Lane Ward	...	25
„ „ Moorsley Ward	...	1
„ „ East Rainton Ward...	...	4
Total notifications received	...	74

Diphtheria.

Notifications from Hetton Downs Ward	...	16
„ „ Hetton Ward	...	8
„ „ Easington Lane Ward	...	15
„ „ Moorsley Ward	...	0
„ „ East Rainton Ward...	...	1
Total notifications received	...	40

Erysipelas.

Notifications from Hetton Downs Ward	...	4
„ „ Hetton Ward	...	2
„ „ Easington Lane Ward	...	6
„ „ Moorsley Ward	...	0
„ „ East Rainton Ward...	...	2
Total notifications received	...	14

Pneumonia.

Notifications from Hetton Downs Ward	...	14
„ „ Hetton Ward	...	7
„ „ Easington Lane Ward	...	28
„ „ Moorsley Ward	...	3
„ „ East Rainton Ward...	...	3
Total notifications received	...	55

Puerperal Pyrexia.

Notifications from Hetton Downs Ward	...	0
„ „ Hetton Ward	... ..	1
„ „ Easington Lane Ward	... ..	2
„ „ Moorsley Ward	... ..	2
„ „ East Rainton Ward...	... ..	0
Total notifications received	... ..	5

Typhoid.

Notifications from Hetton Downs Ward	...	1
Total notifications received	... ..	1

Tuberculosis.

Notifications from Hetton Downs Ward	...	6
„ „ Hetton Ward	... ..	6
„ „ Easington Lane Ward	... ..	11
„ „ Moorsley Ward	... ..	2
„ „ East Rainton Ward...	... ..	1
Total notifications received	... ..	26

TUBERCULOSIS. New cases and mortality during 1938.

Age Periods.	NEW CASES.				DEATHS.			
	Respiratory.		Non-respiratory		Respiratory.		Non-respiratory	
	M.	F.	M.	F.	M.	F.	M.	F.
0	0	0	0	0	0	0	0	0
1	1	0	1	4	0	0	0	0
5	0	0	2	4	0	0	0	1
15	3	0	2	1	2	2	0	0
25	0	1	0	0	2	2	0	1
35	3	1	0	0	2	0	1	0
45	2	0	0	0	2	0	0	0
55	0	0	1	0	0	0	0	0
65 and upwards	0	0	0	0	0	0	0	0
Totals...	9	2	6	9	8	4	1	2

All the above cases with the exception of three were notified prior to death.

**Notifiable Diseases (other than Tuberculosis)
during the Year 1938.**

DISEASE.	Total cases notified	Cases admitted to hospital	Total deaths
Small pox	Nil	—	—
Scarlet fever	74	63	0
Diphtheria	39	44	2
Enteric fever (including paratyphoid)	1	1	0
Pneumonia	55	—	15
Puerperal Pyrexia	4	—	—
Erysipelas	14	0	0

Diphtheria Immunisation.

Experience during the year has further shown that diphtheria picks out the children who have not been protected by immunisation. Since immunisation was instituted in 1935, no immunised child has died from diphtheria in the district.

Immunisation was carried out in respect of 540 children during 1938.

A D D E N D U M

WATER SUPPLY

The following extension to mains, mostly in connection with rehousing, were carried out during the year; (1) 520 yards of 3 inch pipe at Pest Carr; (2) 80 yards of 4 inch pipe and 92 yards of 2 inch pipe at Eppleton Estate; (4) 330 yards of 4 inch pipe at Springwell Terrace.

The Moorsley water supply came under suspicion during August, and bacteriological examination revealed it to be badly polluted. A Circular was immediately distributed throughout Moorsley advising the people to boil all water used for drinking and domestic purposes until the cause of the pollution was investigated and removed. A manure heap placed close to the reservoir was suspected, and with the removal of this heap the pollution disappeared.

Shortages of supply were observed at various parts from time to time.

baths and water-closets were without any water for about eight weeks. The quality of the water was found to be satisfactory according to the three bacteriological examinations carried out during the year.

The question of the water supply has for some years been causing concern to the Health Department. The supply needs investigation and overhauling. The reservoirs cannot be regarded as satisfactory, and some considerable reconstruction both of reservoirs and mains should receive attention. It should again be stressed that, under the present arrangement it is impossible to give the supply the necessary, detailed, individual, expert supervision, and I am to submit, as has been so strongly emphasised by the Ministry, that the first necessity is that the undertaking should be placed under the supervision of a fully qualified engineer.

